

The Contribution of Older Workers' Issue to Innovate Apprenticeship from the Perspective of the Cultural Historical Activity Theory

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Summary: The paper refers to a research adopting Cultural Historical Activity Theory (CHAT) to interpret how older workers engage in vocational learning in object oriented activity such as industrial production. It is based on interviews of older workers working in the shop floor in a company which approximates the ideal type of flexible specialization, and is based in the area of Turin. The data are analyzed to pull out the view of older workers on work challenges and how they face them, as a way of highlighting relevant issues for the debate on how to innovate apprenticeship. It emerges the role of practical knowledge in three types of situations - and its role with theoretical knowledge - as well as the way in which older workers like sharing it with younger colleagues.

Workplace learning and motives for learning: what the experience of older workers tells about apprenticeship

In front of technological innovations and changing working practices older workers have to keep learning to face work changes and support their company to maintain competitive. A discussion on the aspects of the relations that older workers have with changing working contexts and how they engage in workplace learning and feel integrated in the workplace community of practice can highlight the implications for an updated conceptualization of apprenticeship. In this paper apprenticeship is considered as a model of learning (Fuller and Unwin 1998).

The vocational identity and occupational motivation of apprentices grow in communities of practices shaped by strategies of production and workplace organizations. Apprenticeship presupposes that older workers are 'experts' who can support and mediate the enculturation of young apprentices into their occupations. The focus of the paper is to point out the way in which different industrial production strategies (mass production, flexible mass production, flexible specialization, diversified quality production, etc) influence workers motivation to engage in learning on shop-floors, differentially predispose them to want to participate in new forms of working and learning and give them objects to engage with. The issue of the relation between context, learning and the development of work practice has been explored by a number of writers (Lave and Wenger 1991; Fischer, Boreham et al. 2004; Rainbird, Fuller et al. 2004; Evans, Hodgkinson et al. 2006; Billett, Sommerville et al. 2007).

This paper offers a new conceptual framework, based on ideas from Cultural Historical Activity Theory (CHAT) and the Sociology of Work and Organization (SoW&O), to analyzing the mechanisms that connect individuals, their motives and work contexts (for instance Piore and Sabel 1984; Regini 1995). From CHAT, it uses

the concept of the object of activity to explain the driving force behind human activities and cultural tools as mediating actions and practices in the activities. From SoW, it uses the idea of production strategies to take into account firms' market strategies as a condition for work design and workplace organization differently characterized by degrees of autonomy for the workers in the shop floor. Taken in combination, this allows me to interpret older workers' motivation to learning in shop-floors as connected to the object of industrial activity (mass production versus flexible specialization) which is the motive of the activity (Migliore 2009). Workers' subjectivity is conceptualized as hierarchy of motives, which is seen as having its ontological grounding in the involvement in collective, historical and transformative processes of material production (Leont'ev 1978; Stetsenko and Arieviditch 2004).

Methods and research design

Two case studies are carried out, one on an enterprise identified as an example of mass production and the other one as an instance of flexible specialization. However, the data are mostly collected at individual level, configuring a multiple embedded case study. Data from older workers in the shop floor and other key individuals in the enterprises are collected through free discursive interviews. These are transcribed following a code of notations that highlights subjective aspects in the individual narrative (Poland 2002). The analysis of the transcripts is carried out with constant comparative method (CCM) (Boeije 2002) that I apply in an original way (Migliore 2009).

I selected case studies in the region of Piedmont, in the area of Turin. This Italian region presents an ageing trend of the workforce as well as a context of significant transformation from the traditional manufacturing economy towards an economy in which high-value-added products and services are strategic and production is market-driven.

Results

Although the focus of the research is on older workers and learning, it is possible to pull out some contributions to the issue of apprenticeship from the data analysis in progress. I put forward the idea of knowing the views of older workers about work changes and challenges in workplaces to highlight possible issues for the debate on how to innovate apprenticeship.

For reasons of space, I will concentrate on the case study on the enterprise E2 (name code) which is close to the ideal type of flexible specialization (Piore and Sabel 1984). In company E2 the labour process requires a shop floor organized with centres of work, equipped with multi-purpose machinery as lathes, milling cutters, welders. Usually each centre of work is operated by one worker with broad skills. The case study on mass production (Ragini 1995) is about a company (E1) in which most of the production is organized through assembly line and low skilled workers. Yet this type of production offers little opportunity for apprenticeship for shop floor workers, due to the object of the activity.

At least three themes emerge in the case of company E2 which can contribute to the debate on apprenticeship: the role of experience and theory in carrying out complex tasks and facing variability; the awareness of multiple ways of doing the same job; and "saying just if requested" rather than teaching. I present and discuss them in turn. Before, I spend few words about how workplace learning appears from the data analysis carried out so far.

Learning as embedded in the engagement with the activity object

Workplace learning appears as a process intimately connected to the object of the industrial production in E2, which is producing parts moulded with lathes, milling cutters and welding. Workers engage with complex tasks and their work is mediated by tool machines, industrial designs, and experience accumulated in decades of work. Engagement is described by an older worker as something that happens because one ends up to like the job he/she is doing, especially if you can engage with other colleagues to enhance the process. I can perceive their engagement with their jobs through the way in which they describe to me their jobs: they give accurate descriptions and while they are talking about the complex tasks they carry out - their speech becomes assertive, more confident, its rhythm quicker, the timbre higher.

Experience in complex tasks: facing variability of conditions

Accumulated experience and relations with other colleagues are often mentioned by the older workers interviewed in company E2. Both elements appear connected to the complexity of tasks they carry out. The interviewees describe their tasks as dotted of mishaps. More than once they say that despite the industrial designs and standard procedures, their jobs present variability related to slight differences of material or problems of buckling. In these cases they point out that experience can help a lot to adapt the theoretical procedures to the changed conditions. It also happens that they have to reproduce parts whose industrial designs are not available. In this case too experience is very useful. The third case in which experience is useful is when it happens that the labour process takes a bad turn and it becomes difficult and you risk panicking. Mr D (all names are substituted by alphabetic letters) remembers that a younger colleague was probably unsuccessful in mastering the job he does and which he was trying to teach him, because he used to feel very nervous when things did not work properly.

When they talk about their experience, I usually ask them whether they think that what they learned at school is important. The answers show that the relation between theory and practice is not always as expected. One worker says that he received a narrow knowledge at school about a particular topic (doing thread) and that working has given to him the opportunity to operate different jobs and to develop general ideas about mechanics. However the interviewed older workers acknowledge the importance of mastering theoretical concepts. These do mediate their working practices, but the theoretical cultural tools are not enough and need to be adjusted with the practical knowledge developed through experience to understand how to apply procedures. This theme of relation between theory and practice will remerge in the next section.

Sharing practical knowledge: saying rather than teaching

The older workers I have interviewed all like sharing their tricks with colleagues and especially young colleagues. There is a feeling of achievement that I can perceive in their way of presenting the issue: for instance, Mr C would like to pass his practical knowledge to the younger ones so that when he retires and walks by the plant, he can imagine that there still something of him inside there.

They use not only the verb 'teaching', but also the verb 'saying' (Mr B and Mr A). It seems that they have learned that one cannot teach colleagues and that among colleagues there are talks, not teaching as formal instruction. This characteristic of workplace learning is linked to the equal position workers have in the shop floor, but it seems it works as a way of preserving their own autonomy. Mr A says that he does not like to give advice if not required. He points out that this is because he does not

want other colleagues to interfere with his work: so he thinks that also his colleagues prefer first trying to solve the problem and then may look for help, if necessary (Mr A).

Behind the choice of the word 'saying' instead of 'teaching' there also seems to be the awareness that the trick suggested is just one way of doing things. Mr A points out that he may say how to do a certain job, but he always adds that that is how he does the job, but if colleagues find a better way to do it, that is welcome. The same worker claims that improvements are useful for two reasons: one is about making the process more efficient, the other is about preserving the worker's health. He has been paying attention to his posture while working since he was young, with the idea that one should not have pain in the evening or having health problems later in life.

More than one worker raises the issue that not all colleagues want to share their knowledge. Mr A reports the case of a young colleague who was lucky: he used to work in another company and when arrived in E2 did not know the work. However he could find 'the right people' who 'explain to him a number of things' which 'he learned' and now he is one of the best young colleagues in E2.

Mr D brings the issue of young colleagues who are educated and deal with tasks which are earlier in the labour process and affect workers' work in the shop floor. He refers to the engineers who work in another department of the company ('Technologie') where they prepare the programmes of the tool machines. Adopting a tone of voice as a way of showing regret, disappointment, but also pity for them, he tells that they have a theoretical preparation, but "... they do not know because they have never seen practically (...) and therefore they do not know what it is possible to do [and what it is not possible to do] (...) because if one knows how it is produced, then he can think "it is needed this and this and this" (...) sometimes things go wrong because maybe they [the young engineers] do not ask".

Mr G notices that young workers arrive in the workplaces later, after school, and they are supposed to be able to work. This is different from what was his experience of entering the world of work in the beginning of the 80s: he was asked to do things as cleaning, keeping in order the workplace and gradually learned from the older workers and made his own experience. He adds that this was the typical way of starting working at that time.

Discussion of the findings and implications for apprenticeship

The findings show that when the object of activity implies complex tasks mediated by tool machines and industrial designs, and labour processes dotted by mishap and variable conditions, the practical knowledge developed through experience by older workers plays a relevant role in bridging the gap between theory (represented for instance by the industrial design) and practice. At the same time the research highlights the engagement of the interviewed older workers in their jobs and their willingness to share the practical knowledge with younger colleagues. However from the interviews it emerges that not all workers are happy to share what they have learned through practices and help younger colleagues.

The way of passing knowledge from more experienced workers to less one occurs mediated by autonomy and independence as important motives for the interviewed older workers. The dynamic is also mediated by the belief that there are not absolute notions and information about how to do a job. However the circulation of knowledge is not always easy. It appears difficult between different positions in the labour process and workplace organization (workers in the shop floor and engineers in the department of technologies).

These findings suggest that, where it is not already provided, programmes of apprenticeship could benefit from the involvement of older workers who show interest in sharing their practical knowledge with younger colleagues.

However the involvement of older workers implies a re-conceptualisation of the relation between theory and practice, so that these types of knowledge could integrate each other (Guile 2006), as it occurs in the practices of older workers carrying out their complex tasks. As argued by Guile, this is possible if our understanding of practice-based learning leaves the Rylan distinction between codified knowledge and practical knowledge and shifts to the emphasis on the dialectical relation between these two types of knowledge. This dialectical relation finds its context in the social practice of giving and asking for reasons.

Adopting this perspective to interpret the findings presented in this paper suggests that apprenticeship can be designed to be a learning journey in which workers of different generations develop through the social practice of giving and asking for reasons how to integrate theory with practice and practice with theory to become and remain full members in their communities of practices in front of changes and innovation. However, according to this research, the presupposition of apprenticeship as a learning journey is being able to engage with the object of the industrial activity thanks to the degrees of autonomy allowed to workers in the shop-floor.

The theoretical framework built for this research does not allow to interpret the emotions and feelings emerged in the interviews, which seem linked to the difficulties of dealing with complex tasks where theory is not enough to guarantee a successful outcome. Further investigation is needed on how to take into account the emotional aspects in apprenticeship as a learning model.

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